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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,127	09/06/2005	Paul Wentink	Serie 6038	6176
40582	7590	01/02/2008	EXAMINER	
AIR LIQUIDE			PARSA, JAFAR F	
Intellectual Property			ART UNIT	
2700 POST OAK BOULEVARD, SUITE 1800			PAPER NUMBER	
HOUSTON, TX 77056			1621	
			MAIL DATE	DELIVERY MODE
			01/02/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/541,127	<b>Applicant(s)</b> WENTINK ET AL.	
	<b>Examiner</b> Jafar Parsa	<b>Art Unit</b> 1621	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 44-71 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 44-71 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 112***

Regarding claims 44, 70 and 71, the phrase "may be" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 44-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steynberg et al (WO 02/38699) in view of Butwell et al (USPN 6497750).

Applicants' claimed invention is directed to a method for converting hydrocarbon gases into hydrocarbon liquids through Fischer-Tropsch methods. In addition to liquid hydrocarbons, a waste gas containing hydrogen, carbon dioxide, and hydrocarbons with

less than 6 carbon atoms, is produced. The waste gas is separated and several gas streams are produced. One such gas stream contains methane, and has a recovery rate, in terms of hydrogen and carbon monoxide, of at least 60%. Another gas stream has a recovery rate, in terms of carbon dioxide, of at least 40%. A supplementary gas stream, which contains hydrocarbons with at least 2 carbon atoms, is also created.

Steynberg discloses a method for preparing hydrocarbons by reacting synthesis gas by means of so-called Fischer-Tropsch synthesis. The condensed product phase that is withdrawn from the product condensation stage comprises hydrocarbon products having 3 or more carbon atoms. In the vapor phase work-u stage, the vapor phase is separated into the gas component comprising concentrations of carbon monoxide and hydrogen thereafter referred to as the first gas component, a second gas component enriched in methane, and a third gas component comprising mainly carbon dioxide.

See page 3, lines 13-30.

Steynberg teaches that the vapor phase work-up stage include a carbon dioxide removal step in which the third gas component is removed from the vapor phase, and a subsequent cryogenic separation step to which the residual vapor phase is subjected and in which the first gas component is cryogenically separated from the second gas component. The residual vapor phase is passed to a subsequent pressure swing adsorption step where it is separated into the first and second component. See page 4.

Steynberg teaches that a vapor phase withdrawal line 34 from the stage 33 to a heavy ends recovery stage 36. A light hydrocarbon withdrawal (less than 3 carbon) line 38 leads from the stage 36 to the stage 28. See page 7, lines 13-16. A second gas

component withdrawal 46 leads from the stage 42. A line 48 leads from the line 46 to a hydrogen production stage 50. See page 7, lines 22-25.

Steynberg is silent with respect to recovery rate of hydrogen, carbon monoxide and carbon dioxide by passing the waste gas through a first bed comprising alumina, a second bed comprising silica gel and a third bed comprising at least one member selected from the group consisting of zeolite, carbon molecular sieves and titanium silicate. However, Butwell teaches a process to achieve separation of various gaseous components from waste gas stream including separating nitrogen, methane and gaseous hydrocarbons, utilizing two separate PSA stages adsorbents such as, zeolites (4A pore size), carbon, silica gel, alumina titanium silicate and molecular sieves. See abstract, summary of the invention and examples.

It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the process of Steynberg with the teachings of the Butwell, in order to achieve high separation recovery of various gaseous components from a waste stream.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jafar Parsa whose telephone number is (571)272-0643. The examiner can normally be reached on 9 a.m.-5:30 p.m. (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bonnie Eyler can be reached on 571-272-0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JP  
December 21, 2007

Jafar Parsa  
Primary Examiner  
Art Unit 1621



**J. PARSA**  
**PRIMARY EXAMINER**